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From: **David Alberti**  
(650) 833-2052Client-Matter Number: **351909-991130/US**  
(formerly 2102393-991130)Re: U.S. Patent Application No. 10/033,549  
Filed: December 27, 2001  
Entitled: OPTICAL SPECTRAL POWER MONITORS EMPLOYING TIME-  
DIVISION-MULTIPLEXING DETECTION SCHEMES  
Inventors: Pavel G. POLYNKIN et al.

Pages: 46 - (including this form)

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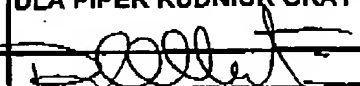
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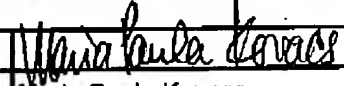
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|   | Filing Date          | December 27, 2001      |                                |
|   | First Named Inventor | Pavel G. POLYNKIN      |                                |
|   | Art Unit             | 2874                   |                                |
|   | Examiner Name        | Michael J. STAHL       |                                |
| Total Number of Pages in This Submission  | 46                   | Attorney Docket Number | 351909-991130 (2102393-991130) |

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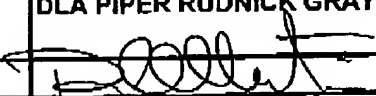
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|   | Examiner Name        | Michael J. STAHL       |                                |
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| Printed name                               | DAVID ALBERTI   |                 |
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Attorney Docket No.: 351909-991130 (2102393)  
Application No. 10/033,549  
Reply Brief

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

Pavel G. POLYKIN, et al.

Application No. 10/033,549

Filed: December 27, 2001

For: OPTICAL SPECTRAL POWER  
MONITORS EMPLOYING TIME-  
DIVISION-MULTIPLEXING  
DETECTION SCHEMES

Group Art Unit: 2874

Examiner: STAHL, M.

**REPLY BRIEF**

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March 20, 2006



Maria Paula Kovacs

**REPLY BRIEF IN RESPONSE TO EXAMINER'S ANSWER**

Sir:

This is a Reply Brief in response to the Examiner's Answer of January 18, 2005  
responding to Applicant's Appeal Brief filed October 3, 2005, appealing from the Office action  
of May 4, 2005. **Three copies of this Reply Brief are enclosed.**

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Reply Brief

### ARGUMENT

The Examiner fails to identify any objective evidence of a motivation to combine the cited references and has ignored the express teachings of the cited references that teach away from the proposed combinations. Instead, the Examiner uses classic hindsight reconstruction (and in some cases outright speculation) to select and combine isolated excerpts from a variety of prior art references in order to meet the limitations of the pending claims.

The Examiner's obviousness determinations ignore the teachings of each of the prior art references as a whole, which counsel against the proposed combinations. The Federal Circuit has repeatedly warned against this type of obviousness analysis. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983); *see also SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 859 F.2d 878, 886-87 (Fed. Cir. 1988) ("Helena cannot pick and choose among the individual elements of assorted prior art references to recreate the claimed invention. . . . Helena has the burden to show some teaching or suggestion in the references to support their use in the particular claimed combination."); *Crown Operations Int'l, Ltd. v. Solutia Inc.*, 289 F.3d 1367, 1376 (Fed. Cir. 2002) (holding that a determination of obviousness "cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the . . . invention.").

All independent claims 1, 18, 32, and 36 recite limitations relating to the use of an array of optical detectors in an optical apparatus, and both the capability of directing spectral channels or optical beams into the array of detectors concurrently and the capability of directing spectral channels or optical beams into the array of detectors in a time-division-multiplexed sequence.

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The Examiner asserts that it would be obvious to combine an array of detectors disclosed in Tobias can be combined with Stafford, but ignores the fact that Tobias expressly teaches away from using an array detector in the manner proposed by the Examiner, i.e., for sequential detection. The Examiner further chooses to overlook the fact that Tobias expressly teaches away from using array detectors in any spectral apparatus. Specifically, the stated objective of Tobias is to “*eliminate the need for array detectors in spectroscopy.*” (Tobias, col. 2, lines 5-7)(emphasis added).

The Examiner adds the Braun and Saunderson references to this flawed combination to try to satisfy the remaining limitations of other pending claims. The proposed combinations including Braun and Saunderson are not supported by any evidence in the record of a motivation to combine, and were constructed by hindsight using the pending claims as a blue print. The Board should overturn all appealed rejections.

***A. Claims 1-11, 32, and 35 are Patentable over Stafford in View of Tobias***

In support of this proposed combination, the Examiner provides much speculation and no substantial evidence of a motivation to combine the two references. Furthermore, Applicants cite evidence showing that the prior art references cited by the Examiner as a whole teach away from the proposed combination. The Examiner has failed to weigh or even consider these teachings in his analysis.

***1. Tobias expressly teaches against using an array detector to perform sequential detection in the manner proposed by the Examiner.***

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Tobias expressly teaches away from using array detectors to perform both multiplexed and concurrent detection in the manner proposed by the Examiner. Specifically, Tobias teaches array detectors are desirable in certain applications where cost is not a factor because they perform “parallel *rather than* sequential data acquisition.” (Tobias, col. 4, lines 43-45)(emphasis added). By using parallel *rather than* sequential data acquisition, the array detectors can provide various advantages, such as rapid acquisition of the “complete spectrum,” “enhanced signal-to-noise ratio” and elimination of “moving parts,” “resulting in reduced cost and improved life and stability.” (Tobias, col. 4, lines 43-50.) Thus, Tobias teaches that the purported advantages of array detectors are realized because they are not used in a sequential detection scheme. Tobias continues on to stress that array detectors are extremely expensive and unsuitable for mass manufacturing. (Tobias, col. 1, lines 60-67.) In fact, a *stated objective* of the Tobias invention is to “*eliminate the need for array detectors in spectroscopy*,” by implementing an apparatus utilizing a single detector. (Tobias, col. 2, lines 5-7)(emphasis added).

The Examiner provides no response to these facts that is supported by the record. Rather, the Examiner merely states that “the fact that Tobias chooses to do things another way does not invalidate the expressly disclosed advantages of array detectors.” (Examiner’s Answer at page 11.) This statement is both misleading and irrelevant. *First*, Tobias is not merely “choosing to do things another way.” Tobias teaches that array detectors should not be used to perform sequential detection. It is well-established that prior art references must be considered “in their entirety” or “as a whole,” including portions leading away from the claimed invention. *W.L. Gore & Associates, Inc.*, 721 F.2d 1540. It is improper “within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to

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the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” *Application of Wesslau*, 353 F.2d 238, 241 (CCPA 1965).

One of ordinary skill in the art reading Tobias “as a whole” would not think to combine an array detector in a system designed to perform sequential detection, as recited in the claimed inventions. To the contrary, one skilled in the art would be lead to believe that an array detector would not be appropriate for such a system. Moreover, the purported “advantages” of array detectors that the Examiner cites are not advantages related to sequential detection. In fact, Tobias says that array detectors are advantageous because they do not employ sequential detection, but rather use concurrent detection. (Tobias at col. 1, lines 43-45.)

The Examiner also argues that because Stafford is the primary reference, the fact that Tobias teaches away from using array detectors should be ignored. (Examiner’s Answer at pages 10-11.) This flatly contradicts well-established Federal Circuit precedent and the MPEP, which hold that prior art references that form a proposed combination must be considered in their entirety in an obviousness analysis. *See W.L. Gore & Associates, Inc.*, 721 F.2d 1540; *MPEP 2141.02*. The Board should decline the Examiner’s invitation to error.

The Examiner further argues that “[i]t does not matter whether the specific Tobias inventions do not perform both multiplexed and concurrent detection.” (Examiner’s Answer at page 11.) This has no relevance to the lack of a motivation to combine the references or to the fact that Tobias teaches away from the proposed combination, which uses array detectors to perform sequential detection. The question is not whether Tobias performs both multiplexed and



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concurrent detection; it is whether one skilled in the art would be motivated to use an array detector to perform sequential or multiplexed detection in view of the teachings of Tobias. The answer is "no."

**2. *There is no substantial evidence of a motivation to combine Stafford and Tobias.***

The Examiner's proposed "objective" evidence of a motivation to combine is limited to the purported advantages of array detectors discussed in Tobias only as they apply parallel detection. (Examiner's Answer at page 11.) Again, these advantages do not apply to sequential detection, which is recited in the proposed combination. With respect to sequential detection, Tobias teaches not to use array detectors. Without a suggestion or motivation to combine the teachings of various prior art references, the invention cannot be found obvious. See *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997) ("The absence of such a suggestion to combine is dispositive in an obviousness determination.").

Finally, one cannot weigh the entirety of teachings of Tobias without considering the express objective of Tobias, which is to "*eliminate the need for array detectors in spectroscopy*" by implementing an apparatus utilizing a single detector. (Tobias, col. 2, lines 5-7)(emphasis added). One of ordinary skill in the art reading this objective would not be motivated to use an array detector in a spectroscopy apparatus. Instead, one skilled in the art would be lead to believe that a single detector system, like the Tobias system, would be superior. The Examiner's hindsight application of Tobias ignores the totality of the reference, which states a primary objective of eliminating of array detectors in spectrometry and which teaches away from using an array of detectors to perform sequential detection.

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***3. Stafford teaches away from array detectors because it expressly teaches using a single detector with a linear response.***

The Examiner fails to provide any evidence that contradicts the fact that Stafford teaches away from using array detectors because it indicates that the single detector employed should be "as linear as possible over as wide a wavelength range as possible, to provide a broadband spectrometer." (Stafford, col. 5, lines 19-22). Instead, the Examiner attempts to improperly shift the burden of proof to the Applicant. Particularly, the Examiner states that "there is no objective evidence that the teachings of Stafford could not be applied to compensate for deviation from linearity for an array of detectors..." (Examiner's Answer at page 9.) But it is not the duty of the Applicant to provide evidence to refute an Examiner's unsupported speculation. Rather, it is the Examiner's duty to present substantial evidence to support his rejection. *In re Zurko*, 258 F.3d 1379 (Fed. Cir. 2001). The Examiner has failed to meet this duty.

The Examiner has failed to provide any objective evidence in support of his assertion that Stafford could be applied to compensate for deviation from a linear response in an array of detectors. All embodiments of Stafford teach using only a single detector, despite the fact that array detectors were available at the time. (See Figures 1-5). Stafford never suggests that an array of detectors would be desirable or would even work properly with the disclosed spectrometer.

***4. The Examiner's proposed combination of Tobias and Stafford does not teach all limitations of the claimed invention and/or would be inoperable for its intended purpose.***

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The Examiner now asserts for the very first time in his Answer that the claims do not require a system that actually performs "detection." This argument is directly contrary to a position previously taken by the Examiner, and should be rejected.

In the Office action of August 5, 2004, the Examiner stated, "Solgaard and Tobias alone do not disclose or suggest a single device embodiment which can perform both sequential and concurrent detection. Accordingly, all previous rejections based on Solgaard are withdrawn." (Office action of August 5, 2004 at page 9.) The Examiner further stated, "Stafford does teach a single device which can perform both sequential or concurrent detection." (*Id.*) Clearly, the Examiner had previously determined that the claims and prior art required actual "detection," not merely the ability to direct signals into a detector.

Even if the Examiner's newly adopted interpretation of the claim language were correct, it would not change the analysis. The proposed combination would still have to work in order to be a proper combination under 35 U.S.C. §103(a). One skilled in the art would still have no motivation to combine an array detector with Stafford to create an apparatus that could not perform sequential and concurrent detection. It is well-known that a combination of prior art is obvious only if there is a reasonable expectation of success. *In re Merck & Co., Inc.* 800 F.2d 1091 (Fed. Cir. 1986). Likewise, if a proposed combination would render a prior art reference unsatisfactory for its intended purpose, then there cannot be a suggestion or motivation to make that modification. *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

Because Tobias teaches that array detectors are used for parallel rather than sequential detection, there is no evidence that the proposed combination would provide a system that could

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perform both concurrent and sequential detection. The Examiner's primary response is that microprocessor technology is well developed and "a skilled person would reasonably expect to be able to purchase or design a microprocessor which could handle signals from more than one detector." The Examiner further suggests that such a processor is already known as cited in U.S. Patent No. 6,249,346 of Chen et al.

The Examiner has cited no evidence of record supporting his assertion that one skilled in the art could easily design such a microprocessor. Furthermore, the Examiner's belated attempt to add yet another reference to this proposed combination further exemplifies his hindsight-based analysis. The Examiner provides no objective evidence of a motivation for adding Chen. Moreover, even if Chen were added, it would not provide the selective concurrent and parallel detection capabilities of the claimed invention. Instead, Chen merely discloses that signal processing circuitry can be etched into a photodiode array "for initial processing of information received from the photodiode array 14." (Chen, col. 3, lines 5-7.) Chen does not disclose what this circuitry is or what it does, or how multiple signals could be handled by a processor.

The Examiner further asserts that the software taught by Stafford could be readily applied to compensate an array of detectors. (Final Office Action, pg. 5, April 29, 2005). However, the Stafford reference refers only to compensation of "known" non-linear responses in a single detector, and not any deviation from a linear response. (Stafford, col. 7, lines 1-3; Final Office Action, pg. 4-5, April 29, 2005). There is no objective evidence that the teachings of Stafford could be readily applied to compensate an array of detectors. Thus, there is no objective evidence that the proposed combination could be modified in the proposed manner.

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The Board should overturn all rejections of pending claims because all rejections are based on the flawed combination of Stafford and Tobias.

***B. Claims 18-29, 31, and 36 are Patentable over Stafford in View of Tobias and Braun***

The Examiner has failed to show any a motivation to include the claimed beam focuser with the proposed combination, and has again failed to point to any substantial evidence of record supporting a motivation to combine Braun with Stafford and Tobias in the proposed manner. Instead, the Examiner relies wholly on his own conclusory statements without any evidentiary support on the record. This contravenes Federal Circuit precedent. *In re Zurko*, 258 F.3d 1379 (Fed. Cir. 2001). The Examiner's rejections relating to the combination of Stafford, Tobias and Braun should be overturned on this basis alone.

In order to support a proposed combination under §103, an Examiner must cite to objective evidence in the record. An examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. See *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968). Moreover, as the MPEP warns, "It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art." M.P.E.P. 2144.03 (emphasis in original). Further, "It is never appropriate to rely solely on 'common knowledge'

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in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based." *Id.* citing *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001).

***1. The Examiner provides no evidence of a motivation to combine a beam focuser with the proposed combination of references.***

The Examiner resorts to unsupported speculation to manufacture a motivation to combine a beam focuser with the three references of record in the proposed manner. Particularly, the Examiner states, "It would have been obvious to a person having ordinary skill in the art to provide lenses to focus the respective channels onto the input ends of the corresponding fibers 92 ... since it is well known that the efficiency of coupling light into an optical fiber is extremely sensitive to misalignment, and since the core diameter of an optical fiber is usually much smaller than the outer diameter of the fiber." (Examiner's Answer at page 5.)

*First*, this alleged benefit is not supported by any evidence of record and should be disregarded with respect to all claims on this basis alone. *Second*, the statement is completely irrelevant to at least claims 19-21, where the beam-manipulating elements are micromirrors, because the focusing lens does not focus spectral channels onto any optical fibers in this type of embodiment. The embodiment of Stafford that includes mirrors (DMDs) as beam-manipulating elements is the Figure 2 embodiment. This embodiment does not include fibers 92, which are only part of the SLM 90 of the Figure 3 embodiment. Therefore, even if the Examiner's unsupported statement as to the motivation to use a focusing lens with optical fibers were considered, it would not apply to claims 19-21, which use mirrors as beam manipulating elements and do not include fibers. It is undisputed that the Examiner has failed to provide a

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motivation to combine a beam focuser together with these references with respect to claims 19-21.

***2. The Examiner provides no evidence of a motivation to combine Braun with Stafford and Tobias.***

The Examiner cites to no objective evidence on the record that expressly or implicitly suggests or motivates combining Braun together with Stafford and Tobias in the proposed manner. Again, the Examiner resorts to his own speculation in manufacturing a motivation to combine.

*First*, the Examiner states that "LCD shutters" are typically polarization sensitive. (Examiner's Answer at page 6.) The Examiner provides no support on the record for this statement, and thus, it is not evidence supporting a motivation to combine. It should be disregarded. *In re Zurko*, 258 F.3d 1379.

*Second*, the Examiner also proposes:

In alternative embodiment, a grating may be used instead of the prism as noted above. Therefore the technique taught by Braun would be useful in achieving proper orientation of the polarization components of an input signal in the Stafford device. Accordingly it would have been obvious to a skilled person to provide a polarization splitter, a polarization rotator, and an additional spatial light modulator array 90 in the above-proposed Stafford/Tobias combination in order to enable the handling of signals for orthogonal components.

With the above string of conclusory assumptions, the Examiner once again engages in classic hindsight reconstruction without citing any substantial evidence on the record supporting a motivation to combine. The Examiner does not explain why one skilled in the art would be motivated to orient the components in a particular way in the Stafford system. Furthermore, the

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Examiner does not explain why one skilled in the art would be motivated to modify the Stafford system to include a significant number of additional components in order to handle orthogonal components separately. The Examiner's unsupported statements should be disregarded. *In re Zurko*, 258 F.3d 1379.

Accordingly, for at least these additional and independent reasons, the proposed combination is improper and cannot obviate the claims of the present invention. Therefore claims 18-29, 31, and 36 are patentable over Stafford in view of Tobias, further in view of Braun.

***C. Claims 12-17 are Patentable over Stafford in View of Tobias and Saunderson***

The Examiner again fails to provide substantial evidence of a motivation to combine Saunderson with the proposed combination of Stafford and Tobias, and ignores the teachings of the references that counsel away from such a combination.

This proposed combination is improper for all the reasons set forth above with respect to the combination of Stafford and Tobias. Additionally, the system of Saunderson relies on moving parts, which Stafford and Tobias specifically counsel against. Saunderson teaches a mechanical servo system that moves a lever 46 using a servo motor 48 and threaded block 52 to align the spectrometer. (Saunderson, col. 2, lines 65-72.) In contrast, both Stafford and Tobias teach away from using mechanical moving components. Stafford teaches that "mechanical motions cause vibrations and result in wear, which may cause alignment or calibration problems." (Stafford at col. 1, lines 41-43.) Likewise, Tobias suggests that array detectors are employed for the purpose of eliminating moving parts. (Tobias at col. 1, lines 47-50.) The



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Examiner's hindsight combination would include mechanical moving parts together with the Stafford system and array detectors, which were designed to eliminate moving parts.

The Examiner has failed to identify any substantial evidence on the record of a motivation to combine. Furthermore, the Examiner has failed to weigh or even consider the portions of the references that teach away from the proposed combination. Accordingly, for at least these reasons, the proposed combination is improper and cannot obviate the claims of the present invention. Therefore claims 12-17 are patentable over Stafford in view of Tobias, further in view of Saunderson.

The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 07-1896 referencing Docket No. 351909-991130 (2102393). A duplicate copy of this paper is enclosed.

Respectfully submitted,

DLA Piper Rudnick Gray Cary US LLP

Dated: 3/20/2006

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE****RECEIVED  
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In re Patent Application of

Pavel G. POLYKIN, et al.

Application No. 10/033,549

Filed: December 27, 2001

For: OPTICAL SPECTRAL POWER  
MONITORS EMPLOYING TIME-  
DIVISION-MULTIPLEXING  
DETECTION SCHEMES

Group Art Unit: 2874

Examiner: STAHL, M.

**REPLY BRIEF**

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March 20, 2006

Maria Paula Kovacs

**REPLY BRIEF IN RESPONSE TO EXAMINER'S ANSWER**

Sir:

This is a Reply Brief in response to the Examiner's Answer of January 18, 2005  
responding to Applicant's Appeal Brief filed October 3, 2005, appealing from the Office action  
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EM/7201896.1  
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Reply Brief

### ARGUMENT

The Examiner fails to identify any objective evidence of a motivation to combine the cited references and has ignored the express teachings of the cited references that teach away from the proposed combinations. Instead, the Examiner uses classic hindsight reconstruction (and in some cases outright speculation) to select and combine isolated excerpts from a variety of prior art references in order to meet the limitations of the pending claims.

The Examiner's obviousness determinations ignore the teachings of each of the prior art references as a whole, which counsel against the proposed combinations. The Federal Circuit has repeatedly warned against this type of obviousness analysis. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983); *see also SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 859 F.2d 878, 886-87 (Fed. Cir. 1988) ("Helena cannot pick and choose among the individual elements of assorted prior art references to recreate the claimed invention. . . . Helena has the burden to show some teaching or suggestion in the references to support their use in the particular claimed combination."); *Crown Operations Int'l, Ltd. v. Solutia Inc.*, 289 F.3d 1367, 1376 (Fed. Cir. 2002) (holding that a determination of obviousness "cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the . . . invention.").

All independent claims 1, 18, 32, and 36 recite limitations relating to the use of an array of optical detectors in an optical apparatus, and both the capability of directing spectral channels or optical beams into the array of detectors concurrently and the capability of directing spectral channels or optical beams into the array of detectors in a time-division-multiplexed sequence.

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The Examiner asserts that it would be obvious to combine an array of detectors disclosed in Tobias can be combined with Stafford, but ignores the fact that Tobias expressly teaches away from using an array detector in the manner proposed by the Examiner, i.e., for sequential detection. The Examiner further chooses to overlook the fact that Tobias expressly teaches away from using array detectors in any spectral apparatus. Specifically, the stated objective of Tobias is to "*eliminate the need for array detectors in spectroscopy.*" (Tobias, col. 2, lines 5-7)(emphasis added).

The Examiner adds the Braun and Saunderson references to this flawed combination to try to satisfy the remaining limitations of other pending claims. The proposed combinations including Braun and Saunderson are not supported by any evidence in the record of a motivation to combine, and were constructed by hindsight using the pending claims as a blue print. The Board should overturn all appealed rejections.

***A. Claims 1-11, 32, and 35 are Patentable over Stafford in View of Tobias***

In support of this proposed combination, the Examiner provides much speculation and no substantial evidence of a motivation to combine the two references. Furthermore, Applicants cite evidence showing that the prior art references cited by the Examiner as a whole teach away from the proposed combination. The Examiner has failed to weigh or even consider these teachings in his analysis.

***1. Tobias expressly teaches against using an array detector to perform sequential detection in the manner proposed by the Examiner.***

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Tobias expressly teaches away from using array detectors to perform both multiplexed and concurrent detection in the manner proposed by the Examiner. Specifically, Tobias teaches array detectors are desirable in certain applications where cost is not a factor because they perform “parallel *rather than* sequential data acquisition.” (Tobias, col. 4, lines 43-45)(emphasis added). By using parallel *rather than* sequential data acquisition, the array detectors can provide various advantages, such as rapid acquisition of the “complete spectrum,” “enhanced signal-to-noise ratio” and elimination of “moving parts,” “resulting in reduced cost and improved life and stability.” (Tobias, col. 4, lines 43-50.) Thus, Tobias teaches that the purported advantages of array detectors are realized because they are not used in a sequential detection scheme. Tobias continues on to stress that array detectors are extremely expensive and unsuitable for mass manufacturing. (Tobias, col. 1, lines 60-67.) In fact, a *stated objective* of the Tobias invention is to “*eliminate the need for array detectors in spectroscopy*,” by implementing an apparatus utilizing a single detector. (Tobias, col. 2, lines 5-7)(emphasis added).

The Examiner provides no response to these facts that is supported by the record. Rather, the Examiner merely states that “the fact that Tobias chooses to do things another way does not invalidate the expressly disclosed advantages of array detectors.” (Examiner’s Answer at page 11.) This statement is both misleading and irrelevant. *First*, Tobias is not merely “choosing to do things another way.” Tobias teaches that array detectors should not be used to perform sequential detection. It is well-established that prior art references must be considered “in their entirety” or “as a whole,” including portions leading away from the claimed invention. *W.L. Gore & Associates, Inc.*, 721 F.2d 1540. It is improper “within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to

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the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” *Application of Wesslau*, 353 F.2d 238, 241 (CCPA 1965).

One of ordinary skill in the art reading Tobias “as a whole” would not think to combine an array detector in a system designed to perform sequential detection, as recited in the claimed inventions. To the contrary, one skilled in the art would be lead to believe that an array detector would not be appropriate for such a system. Moreover, the purported “advantages” of array detectors that the Examiner cites are not advantages related to sequential detection. In fact, Tobias says that array detectors are advantageous because they do not employ sequential detection, but rather use concurrent detection. (Tobias’ at col. 1, lines 43-45.)

The Examiner also argues that because Stafford is the primary reference, the fact that Tobias teaches away from using array detectors should be ignored. (Examiner’s Answer at pages 10-11.) This flatly contradicts well-established Federal Circuit precedent and the MPEP, which hold that prior art references that form a proposed combination must be considered in their entirety in an obviousness analysis. See *W.L. Gore & Associates, Inc.*, 721 F.2d 1540; *MPEP 2141.02*. The Board should decline the Examiner’s invitation to error.

The Examiner further argues that “[i]t does not matter whether the specific Tobias inventions do not perform both multiplexed and concurrent detection.” (Examiner’s Answer at page 11.) This has no relevance to the lack of a motivation to combine the references or to the fact that Tobias teaches away from the proposed combination, which uses array detectors to perform sequential detection. The question is not whether Tobias performs both multiplexed and

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concurrent detection; it is whether one skilled in the art would be motivated to use an array detector to perform sequential or multiplexed detection in view of the teachings of Tobias. The answer is "no."

**2. *There is no substantial evidence of a motivation to combine Stafford and Tobias.***

The Examiner's proposed "objective" evidence of a motivation to combine is limited to the purported advantages of array detectors discussed in Tobias only as they apply parallel detection. (Examiner's Answer at page 11.) Again, these advantages do not apply to sequential detection, which is recited in the proposed combination. With respect to sequential detection, Tobias teaches not to use array detectors. Without a suggestion or motivation to combine the teachings of various prior art references, the invention cannot be found obvious. *See Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997) ("The absence of such a suggestion to combine is dispositive in an obviousness determination.").

Finally, one cannot weigh the entirety of teachings of Tobias without considering the express objective of Tobias, which is to "*eliminate the need for array detectors in spectroscopy*" by implementing an apparatus utilizing a single detector. (Tobias, col. 2, lines 5-7)(emphasis added). One of ordinary skill in the art reading this objective would not be motivated to use an array detector in a spectroscopy apparatus. Instead, one skilled in the art would be lead to believe that a single detector system, like the Tobias system, would be superior. The Examiner's hindsight application of Tobias ignores the totality of the reference, which states a primary objective of eliminating of array detectors in spectrometry and which teaches away from using an array of detectors to perform sequential detection.

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***3. Stafford teaches away from array detectors because it expressly teaches using a single detector with a linear response.***

The Examiner fails to provide any evidence that contradicts the fact that Stafford teaches away from using array detectors because it indicates that the single detector employed should be "as linear as possible over as wide a wavelength range as possible, to provide a broadband spectrometer." (Stafford, col. 5, lines 19-22). Instead, the Examiner attempts to improperly shift the burden of proof to the Applicant. Particularly, the Examiner states that "there is no objective evidence that the teachings of Stafford could not be applied to compensate for deviation from linearity for an array of detectors..." (Examiner's Answer at page 9.) But it is not the duty of the Applicant to provide evidence to refute an Examiner's unsupported speculation. Rather, it is the Examiner's duty to present substantial evidence to support his rejection. *In re Zurko*, 258 F.3d 1379 (Fed. Cir. 2001). The Examiner has failed to meet this duty.

The Examiner has failed to provide any objective evidence in support of his assertion that Stafford could be applied to compensate for deviation from a linear response in an array of detectors. All embodiments of Stafford teach using only a single detector, despite the fact that array detectors were available at the time. (See Figures 1-5). Stafford never suggests that an array of detectors would be desirable or would even work properly with the disclosed spectrometer.

***4. The Examiner's proposed combination of Tobias and Stafford does not teach all limitations of the claimed invention and/or would be inoperable for its intended purpose.***



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The Examiner now asserts for the very first time in his Answer that the claims do not require a system that actually performs "detection." This argument is directly contrary to a position previously taken by the Examiner, and should be rejected.

In the Office action of August 5, 2004, the Examiner stated, "Solgaard and Tobias alone do not disclose or suggest a single device embodiment which can perform both sequential and concurrent detection. Accordingly, all previous rejections based on Solgaard are withdrawn." (Office action of August 5, 2004 at page 9.) The Examiner further stated, "Stafford does teach a single device which can perform both sequential or concurrent detection." (*Id.*) Clearly, the Examiner had previously determined that the claims and prior art required actual "detection," not merely the ability to direct signals into a detector.

Even if the Examiner's newly adopted interpretation of the claim language were correct, it would not change the analysis. The proposed combination would still have to work in order to be a proper combination under 35 U.S.C. §103(a). One skilled in the art would still have no motivation to combine an array detector with Stafford to create an apparatus that could not perform sequential and concurrent detection. It is well-known that a combination of prior art is obvious only if there is a reasonable expectation of success. *In re Merck & Co., Inc.* 800 F.2d 1091 (Fed. Cir. 1986). Likewise, if a proposed combination would render a prior art reference unsatisfactory for its intended purpose, then there cannot be a suggestion or motivation to make that modification. *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

Because Tobias teaches that array detectors are used for parallel rather than sequential detection, there is no evidence that the proposed combination would provide a system that could

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perform both concurrent and sequential detection. The Examiner's primary response is that microprocessor technology is well developed and "a skilled person would reasonably expect to be able to purchase or design a microprocessor which could handle signals from more than one detector." The Examiner further suggests that such a processor is already known as cited in U.S. Patent No. 6,249,346 of Chen et al.

The Examiner has cited no evidence of record supporting his assertion that one skilled in the art could easily design such a microprocessor. Furthermore, the Examiner's belated attempt to add yet another reference to this proposed combination further exemplifies his hindsight-based analysis. The Examiner provides no objective evidence of a motivation for adding Chen. Moreover, even if Chen were added, it would not provide the selective concurrent and parallel detection capabilities of the claimed invention. Instead, Chen merely discloses that signal processing circuitry can be etched into a photodiode array "for initial processing of information received from the photodiode array 14." (Chen, col. 3, lines 5-7.) Chen does not disclose what this circuitry is or what it does, or how multiple signals could be handled by a processor.

The Examiner further asserts that the software taught by Stafford could be readily applied to compensate an array of detectors. (Final Office Action, pg. 5, April 29, 2005). However, the Stafford reference refers only to compensation of "known" non-linear responses in a single detector, and not any deviation from a linear response. (Stafford, col. 7, lines 1-3; Final Office Action, pg. 4-5, April 29, 2005). There is no objective evidence that the teachings of Stafford could be readily applied to compensate an array of detectors. Thus, there is no objective evidence that the proposed combination could be modified in the proposed manner.

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The Board should overturn all rejections of pending claims because all rejections are based on the flawed combination of Stafford and Tobias.

***B. Claims 18-29, 31, and 36 are Patentable over Stafford in View of Tobias and Braun***

The Examiner has failed to show any a motivation to include the claimed beam focuser with the proposed combination, and has again failed to point to any substantial evidence of record supporting a motivation to combine Braun with Stafford and Tobias in the proposed manner. Instead, the Examiner relies wholly on his own conclusory statements without any evidentiary support on the record. This contravenes Federal Circuit precedent. *In re Zurko*, 258 F.3d 1379 (Fed. Cir. 2001). The Examiner's rejections relating to the combination of Stafford, Tobias and Braun should be overturned on this basis alone.

In order to support a proposed combination under §103, an Examiner must cite to objective evidence in the record. An examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. See *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968). Moreover, as the MPEP warns, "It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art." M.P.E.P. 2144.03 (emphasis in original). Further, "It is never appropriate to rely solely on 'common knowledge'

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in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.” *Id.* citing *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001).

***1. The Examiner provides no evidence of a motivation to combine a beam focuser with the proposed combination of references.***

The Examiner resorts to unsupported speculation to manufacture a motivation to combine a beam focuser with the three references of record in the proposed manner. Particularly, the Examiner states, “It would have been obvious to a person having ordinary skill in the art to provide lenses to focus the respective channels onto the input ends of the corresponding fibers 92 ... since it is well known that the efficiency of coupling light into an optical fiber is extremely sensitive to misalignment, and since the core diameter of an optical fiber is usually much smaller than the outer diameter of the fiber.” (Examiner’s Answer at page 5.)

*First*, this alleged benefit is not supported by any evidence of record and should be disregarded with respect to all claims on this basis alone. *Second*, the statement is completely irrelevant to at least claims 19-21, where the beam-manipulating elements are micromirrors, because the focusing lens does not focus spectral channels onto any optical fibers in this type of embodiment. The embodiment of Stafford that includes mirrors (DMDs) as beam-manipulating elements is the Figure 2 embodiment. This embodiment does not include fibers 92, which are only part of the SLM 90 of the Figure 3 embodiment. Therefore, even if the Examiner’s unsupported statement as to the motivation to use a focusing lens with optical fibers were considered, it would not apply to claims 19-21, which use mirrors as beam manipulating elements and do not include fibers. It is undisputed that the Examiner has failed to provide a

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motivation to combine a beam focuser together with these references with respect to claims 19-21.

***2. The Examiner provides no evidence of a motivation to combine Braun with Stafford and Tobias.***

The Examiner cites to no objective evidence on the record that expressly or implicitly suggests or motivates combining Braun together with Stafford and Tobias in the proposed manner. Again, the Examiner resorts to his own speculation in manufacturing a motivation to combine.

*First*, the Examiner states that "LCD shutters" are typically polarization sensitive. (Examiner's Answer at page 6.) The Examiner provides no support on the record for this statement, and thus, it is not evidence supporting a motivation to combine. It should be disregarded. *In re Zurko*, 258 F.3d 1379.

*Second*, the Examiner also proposes:

In alternative embodiment, a grating may be used instead of the prism as noted above. Therefore the technique taught by Braun would be useful in achieving proper orientation of the polarization components of an input signal in the Stafford device. Accordingly it would have been obvious to a skilled person to provide a polarization splitter, a polarization rotator, and an additional spatial light modulator array 90 in the above-proposed Stafford/Tobias combination in order to enable the handling of signals for orthogonal components.

With the above string of conclusory assumptions, the Examiner once again engages in classic hindsight reconstruction without citing any substantial evidence on the record supporting a motivation to combine. The Examiner does not explain why one skilled in the art would be motivated to orient the components in a particular way in the Stafford system. Furthermore, the

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Examiner does not explain why one skilled in the art would be motivated to modify the Stafford system to include a significant number of additional components in order to handle orthogonal components separately. The Examiner's unsupported statements should be disregarded. *In re Zurko*, 258 F.3d 1379.

Accordingly, for at least these additional and independent reasons, the proposed combination is improper and cannot obviate the claims of the present invention. Therefore claims 18-29, 31, and 36 are patentable over Stafford in view of Tobias, further in view of Braun.

***C. Claims 12-17 are Patentable over Stafford in View of Tobias and Saunderson***

The Examiner again fails to provide substantial evidence of a motivation to combine Saunderson with the proposed combination of Stafford and Tobias, and ignores the teachings of the references that counsel away from such a combination.

This proposed combination is improper for all the reasons set forth above with respect to the combination of Stafford and Tobias. Additionally, the system of Saunderson relies on moving parts, which Stafford and Tobias specifically counsel against. Saunderson teaches a mechanical servo system that moves a lever 46 using a servo motor 48 and threaded block 52 to align the spectrometer. (Saunderson, col. 2, lines 65-72.) In contrast, both Stafford and Tobias teach away from using mechanical moving components. Stafford teaches that "mechanical motions cause vibrations and result in wear, which may cause alignment or calibration problems." (Stafford at col. 1, lines 41-43.) Likewise, Tobias suggests that array detectors are employed for the purpose of eliminating moving parts. (Tobias at col. 1, lines 47-50.) The

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Examiner's hindsight combination would include mechanical moving parts together with the Stafford system and array detectors, which were designed to eliminate moving parts.

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The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 07-1896 referencing Docket No. 351909-991130 (2102393). A duplicate copy of this paper is enclosed.

Respectfully submitted,

**DLA Piper Rudnick Gray Cary US LLP**

Dated: 3/20/2006

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In re Patent Application of

Pavel G. POLYKIN, et al.

Application No. 10/033,549

Filed: December 27, 2001

For: OPTICAL SPECTRAL POWER  
MONITORS EMPLOYING TIME-  
DIVISION-MULTIPLEXING  
DETECTION SCHEMES

Group Art Unit: 2874

Examiner: STAHL, M.

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March 20, 2006



Maria Paula Kovacs

## REPLY BRIEF IN RESPONSE TO EXAMINER'S ANSWER

Sir:

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Tobias expressly teaches away from using array detectors to perform both multiplexed and concurrent detection in the manner proposed by the Examiner. Specifically, Tobias teaches array detectors are desirable in certain applications where cost is not a factor because they perform “parallel *rather than* sequential data acquisition.” (Tobias, col. 4, lines 43-45)(emphasis added). By using parallel *rather than* sequential data acquisition, the array detectors can provide various advantages, such as rapid acquisition of the “complete spectrum,” “enhanced signal-to-noise ratio” and elimination of “moving parts,” “resulting in reduced cost and improved life and stability.” (Tobias, col. 4, lines 43-50.) Thus, Tobias teaches that the purported advantages of array detectors are realized because they are not used in a sequential detection scheme. Tobias continues on to stress that array detectors are extremely expensive and unsuitable for mass manufacturing. (Tobias, col. 1, lines 60-67.) In fact, a *stated objective* of the Tobias invention is to “*eliminate the need for array detectors in spectroscopy*,” by implementing an apparatus utilizing a single detector. (Tobias, col. 2, lines 5-7)(emphasis added).

The Examiner provides no response to these facts that is supported by the record. Rather, the Examiner merely states that “the fact that Tobias chooses to do things another way does not invalidate the expressly disclosed advantages of array detectors.” (Examiner’s Answer at page 11.) This statement is both misleading and irrelevant. *First*, Tobias is not merely “choosing to do things another way.” Tobias teaches that array detectors should not be used to perform sequential detection. It is well-established that prior art references must be considered “in their entirety” or “as a whole,” including portions leading away from the claimed invention. *W.L. Gore & Associates, Inc.*, 721 F.2d 1540. It is improper “within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to

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the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” *Application of Wesslau*, 353 F.2d 238, 241 (CCPA 1965).

One of ordinary skill in the art reading Tobias “as a whole” would not think to combine an array detector in a system designed to perform sequential detection, as recited in the claimed inventions. To the contrary, one skilled in the art would be lead to believe that an array detector would not be appropriate for such a system. Moreover, the purported “advantages” of array detectors that the Examiner cites are not advantages related to sequential detection. In fact, Tobias says that array detectors are advantageous because they do not employ sequential detection, but rather use concurrent detection. (Tobias at col. 1, lines 43-45.)

The Examiner also argues that because Stafford is the primary reference, the fact that Tobias teaches away from using array detectors should be ignored. (Examiner’s Answer at pages 10-11.) This flatly contradicts well-established Federal Circuit precedent and the MPEP, which hold that prior art references that form a proposed combination must be considered in their entirety in an obviousness analysis. *See W.L. Gore & Associates, Inc.*, 721 F.2d 1540; *MPEP* 2141.02. The Board should decline the Examiner’s invitation to error.

The Examiner further argues that “[i]t does not matter whether the specific Tobias inventions do not perform both multiplexed and concurrent detection.” (Examiner’s Answer at page 11.) This has no relevance to the lack of a motivation to combine the references or to the fact that Tobias teaches away from the proposed combination, which uses array detectors to perform sequential detection. The question is not whether Tobias performs both multiplexed and

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concurrent detection; it is whether one skilled in the art would be motivated to use an array detector to perform sequential or multiplexed detection in view of the teachings of Tobias. The answer is "no."

**2. *There is no substantial evidence of a motivation to combine Stafford and Tobias.***

The Examiner's proposed "objective" evidence of a motivation to combine is limited to the purported advantages of array detectors discussed in Tobias only as they apply parallel detection. (Examiner's Answer at page 11.) Again, these advantages do not apply to sequential detection, which is recited in the proposed combination. With respect to sequential detection, Tobias teaches not to use array detectors. Without a suggestion or motivation to combine the teachings of various prior art references, the invention cannot be found obvious. See *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997) ("The absence of such a suggestion to combine is dispositive in an obviousness determination.").

Finally, one cannot weigh the entirety of teachings of Tobias without considering the express objective of Tobias, which is to "*eliminate the need for array detectors in spectroscopy*" by implementing an apparatus utilizing a single detector. (Tobias, col. 2, lines 5-7)(emphasis added). One of ordinary skill in the art reading this objective would not be motivated to use an array detector in a spectroscopy apparatus. Instead, one skilled in the art would be lead to believe that a single detector system, like the Tobias system, would be superior. The Examiner's hindsight application of Tobias ignores the totality of the reference, which states a primary objective of eliminating of array detectors in spectrometry and which teaches away from using an array of detectors to perform sequential detection.

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***3. Stafford teaches away from array detectors because it expressly teaches using a single detector with a linear response.***

The Examiner fails to provide any evidence that contradicts the fact that Stafford teaches away from using array detectors because it indicates that the single detector employed should be “as linear as possible over as wide a wavelength range as possible, to provide a broadband spectrometer.” (Stafford, col. 5, lines 19-22). Instead, the Examiner attempts to improperly shift the burden of proof to the Applicant. Particularly, the Examiner states that “there is no objective evidence that the teachings of Stafford could not be applied to compensate for deviation from linearity for an array of detectors...” (Examiner’s Answer at page 9.) But it is not the duty of the Applicant to provide evidence to refute an Examiner’s unsupported speculation. Rather, it is the Examiner’s duty to present substantial evidence to support his rejection. *In re Zurko*, 258 F.3d 1379 (Fed. Cir. 2001). The Examiner has failed to meet this duty.

The Examiner has failed to provide any objective evidence in support of his assertion that Stafford could be applied to compensate for deviation from a linear response in an array of detectors. All embodiments of Stafford teach using only a single detector, despite the fact that array detectors were available at the time. (See Figures 1-5). Stafford never suggests that an array of detectors would be desirable or would even work properly with the disclosed spectrometer.

***4. The Examiner’s proposed combination of Tobias and Stafford does not teach all limitations of the claimed invention and/or would be inoperable for its intended purpose.***

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The Examiner now asserts for the very first time in his Answer that the claims do not require a system that actually performs "detection." This argument is directly contrary to a position previously taken by the Examiner, and should be rejected.

In the Office action of August 5, 2004, the Examiner stated, "Solgaard and Tobias alone do not disclose or suggest a single device embodiment which can perform both sequential and concurrent detection. Accordingly, all previous rejections based on Solgaard are withdrawn." (Office action of August 5, 2004 at page 9.) The Examiner further stated, "Stafford does teach a single device which can perform both sequential or concurrent detection." (*Id.*) Clearly, the Examiner had previously determined that the claims and prior art required actual "detection," not merely the ability to direct signals into a detector.

Even if the Examiner's newly adopted interpretation of the claim language were correct, it would not change the analysis. The proposed combination would still have to work in order to be a proper combination under 35 U.S.C. §103(a). One skilled in the art would still have no motivation to combine an array detector with Stafford to create an apparatus that could not perform sequential and concurrent detection. It is well-known that a combination of prior art is obvious only if there is a reasonable expectation of success. *In re Merck & Co., Inc.* 800 F.2d 1091 (Fed. Cir. 1986). Likewise, if a proposed combination would render a prior art reference unsatisfactory for its intended purpose, then there cannot be a suggestion or motivation to make that modification. *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

Because Tobias teaches that array detectors are used for parallel rather than sequential detection, there is no evidence that the proposed combination would provide a system that could

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perform both concurrent and sequential detection. The Examiner's primary response is that microprocessor technology is well developed and "a skilled person would reasonably expect to be able to purchase or design a microprocessor which could handle signals from more than one detector." The Examiner further suggests that such a processor is already known as cited in U.S. Patent No. 6,249,346 of Chen et al.

The Examiner has cited no evidence of record supporting his assertion that one skilled in the art could easily design such a microprocessor. Furthermore, the Examiner's belated attempt to add yet another reference to this proposed combination further exemplifies his hindsight-based analysis. The Examiner provides no objective evidence of a motivation for adding Chen. Moreover, even if Chen were added, it would not provide the selective concurrent and parallel detection capabilities of the claimed invention. Instead, Chen merely discloses that signal processing circuitry can be etched into a photodiode array "for initial processing of information received from the photodiode array 14." (Chen, col. 3, lines 5-7.) Chen does not disclose what this circuitry is or what it does, or how multiple signals could be handled by a processor.

The Examiner further asserts that the software taught by Stafford could be readily applied to compensate an array of detectors. (Final Office Action, pg. 5, April 29, 2005). However, the Stafford reference refers only to compensation of "known" non-linear responses in a single detector, and not any deviation from a linear response. (Stafford, col. 7, lines 1-3; Final Office Action, pg. 4-5, April 29, 2005). There is no objective evidence that the teachings of Stafford could be readily applied to compensate an array of detectors. Thus, there is no objective evidence that the proposed combination could be modified in the proposed manner.

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The Board should overturn all rejections of pending claims because all rejections are based on the flawed combination of Stafford and Tobias.

***B. Claims 18-29, 31, and 36 are Patentable over Stafford in View of Tobias and Braun***

The Examiner has failed to show any a motivation to include the claimed beam focuser with the proposed combination, and has again failed to point to any substantial evidence of record supporting a motivation to combine Braun with Stafford and Tobias in the proposed manner. Instead, the Examiner relies wholly on his own conclusory statements without any evidentiary support on the record. This contravenes Federal Circuit precedent. *In re Zurko*, 258 F.3d 1379 (Fed. Cir. 2001). The Examiner's rejections relating to the combination of Stafford, Tobias and Braun should be overturned on this basis alone.

In order to support a proposed combination under §103, an Examiner must cite to objective evidence in the record. An examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. See *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968). Moreover, as the MPEP warns, "It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art." M.P.E.P. 2144.03 (emphasis in original). Further, "It is never appropriate to rely solely on 'common knowledge'

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in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based." *Id. citing In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001).

***1. The Examiner provides no evidence of a motivation to combine a beam focuser with the proposed combination of references.***

The Examiner resorts to unsupported speculation to manufacture a motivation to combine a beam focuser with the three references of record in the proposed manner. Particularly, the Examiner states, "It would have been obvious to a person having ordinary skill in the art to provide lenses to focus the respective channels onto the input ends of the corresponding fibers 92 ... since it is well known that the efficiency of coupling light into an optical fiber is extremely sensitive to misalignment, and since the core diameter of an optical fiber is usually much smaller than the outer diameter of the fiber." (Examiner's Answer at page 5.)

*First*, this alleged benefit is not supported by any evidence of record and should be disregarded with respect to all claims on this basis alone. *Second*, the statement is completely irrelevant to at least claims 19-21, where the beam-manipulating elements are micromirrors, because the focusing lens does not focus spectral channels onto any optical fibers in this type of embodiment. The embodiment of Stafford that includes mirrors (DMDs) as beam-manipulating elements is the Figure 2 embodiment. This embodiment does not include fibers 92, which are only part of the SLM 90 of the Figure 3 embodiment. Therefore, even if the Examiner's unsupported statement as to the motivation to use a focusing lens with optical fibers were considered, it would not apply to claims 19-21, which use mirrors as beam manipulating elements and do not include fibers. It is undisputed that the Examiner has failed to provide a

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motivation to combine a beam focuser together with these references with respect to claims 19-21.

***2. The Examiner provides no evidence of a motivation to combine Braun with Stafford and Tobias.***

The Examiner cites to no objective evidence on the record that expressly or implicitly suggests or motivates combining Braun together with Stafford and Tobias in the proposed manner. Again, the Examiner resorts to his own speculation in manufacturing a motivation to combine.

*First*, the Examiner states that "LCD shutters" are typically polarization sensitive. (Examiner's Answer at page 6.) The Examiner provides no support on the record for this statement, and thus, it is not evidence supporting a motivation to combine. It should be disregarded. *In re Zurko*, 258 F.3d 1379.

*Second*, the Examiner also proposes:

In alternative embodiment, a grating may be used instead of the prism as noted above. Therefore the technique taught by Braun would be useful in achieving proper orientation of the polarization components of an input signal in the Stafford device. Accordingly it would have been obvious to a skilled person to provide a polarization splitter, a polarization rotator, and an additional spatial light modulator array 90 in the above-proposed Stafford/Tobias combination in order to enable the handling of signals for orthogonal components.

With the above string of conclusory assumptions, the Examiner once again engages in classic hindsight reconstruction without citing any substantial evidence on the record supporting a motivation to combine. The Examiner does not explain why one skilled in the art would be motivated to orient the components in a particular way in the Stafford system. Furthermore, the

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Examiner does not explain why one skilled in the art would be motivated to modify the Stafford system to include a significant number of additional components in order to handle orthogonal components separately. The Examiner's unsupported statements should be disregarded. *In re Zurko*, 258 F.3d 1379.

Accordingly, for at least these additional and independent reasons, the proposed combination is improper and cannot obviate the claims of the present invention. Therefore claims 18-29, 31, and 36 are patentable over Stafford in view of Tobias, further in view of Braun.

***C. Claims 12-17 are Patentable over Stafford in View of Tobias and Saunderson***

The Examiner again fails to provide substantial evidence of a motivation to combine Saunderson with the proposed combination of Stafford and Tobias, and ignores the teachings of the references that counsel away from such a combination.

This proposed combination is improper for all the reasons set forth above with respect to the combination of Stafford and Tobias. Additionally, the system of Saunderson relies on moving parts, which Stafford and Tobias specifically counsel against. Saunderson teaches a mechanical servo system that moves a lever 46 using a servo motor 48 and threaded block 52 to align the spectrometer. (Saunderson, col. 2, lines 65-72.) In contrast, both Stafford and Tobias teach away from using mechanical moving components. Stafford teaches that "mechanical motions cause vibrations and result in wear, which may cause alignment or calibration problems." (Stafford at col. 1, lines 41-43.) Likewise, Tobias suggests that array detectors are employed for the purpose of eliminating moving parts. (Tobias at col. 1, lines 47-50.) The

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Examiner's hindsight combination would include mechanical moving parts together with the Stafford system and array detectors, which were designed to eliminate moving parts.

The Examiner has failed to identify any substantial evidence on the record of a motivation to combine. Furthermore, the Examiner has failed to weigh or even consider the portions of the references that teach away from the proposed combination. Accordingly, for at least these reasons, the proposed combination is improper and cannot obviate the claims of the present invention. Therefore claims 12-17 are patentable over Stafford in view of Tobias, further in view of Saunderson.

The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 07-1896 referencing Docket No. 351909-991130 (2102393). A duplicate copy of this paper is enclosed.

Respectfully submitted,

**DLA Piper Rudnick Gray Cary US LLP**

Dated: 3/20/2006

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The Examiner has failed to identify any substantial evidence on the record of a motivation to combine. Furthermore, the Examiner has failed to weigh or even consider the portions of the references that teach away from the proposed combination. Accordingly, for at least these reasons, the proposed combination is improper and cannot obviate the claims of the present invention. Therefore claims 12-17 are patentable over Stafford in view of Tobias, further in view of Saunderson.

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